

WHAT IS CLAIMED IS:

1. A pattern synchronous circuit comprising:

branch means for branching parallel signals of n bits
inputted from a parallel signal input terminal into two
5 portions,

frame detection means for using one portion of the
parallel signals branched by said branch means as input and
detecting a frame identification pattern in the parallel
signals to output the position information,

10 first sort means for using the other portion of the
parallel signals branched by said branch means as input and
sorting the parallel signals according to a low order bit of
the frame position information outputted by said frame
detection means, and

15 second sort means for further using outputs of said first
sort means as input and again sorting the parallel signals
according to all the bits of the frame position information
outputted by said frame detection means.

- 20 2. The pattern synchronous circuit as defined in claim 1,
wherein

said first sort means comprises:

one shift means for using $(n/1)$ -th bit from the first
bit of the parallel signals as input and performing shift
25 operations according to a low order bit of the frame position

information outputted by said frame detection means, and

(l-1) sort means for respectively using (n/l) bits in the continuous parallel signals as input and performing sort operations according to a low order bit of the frame position
5 information outputted by said frame detection means.

3. The pattern synchronous circuit as defined in claim 1, wherein

said second sort means comprises:

10 delay means for using data obtained by sampling said first sort means every m bits as input and delaying signals,
($m-1$) sort means for respectively using data obtained by sampling said mutually different first sort means every m bits as input and performing sort operations according to a
15 low order bit of the frame position information outputted by said frame detection means, and

m shift means for respectively using outputs of said delay means and said sort means as input and performing shift operations according to a high order bit of the frame position
20 information outputted by said frame detection means.

4. The pattern synchronous circuit as defined in claim 2 or 3, wherein

said shift means shifts bits without sorting a list of the parallel signals according to the frame position
5 information.

5. The pattern synchronous circuit as defined in claim 2 or 3, wherein

said sort means sorts a list of bits in the same clock
10 of the parallel signals according to the frame position information.

6. The pattern synchronous circuit as in any one of claims 1 to 3, wherein

15 the low order bit of the frame position information outputted by said frame detection means has the number of bits sufficient to indicate values of the number m of shift means constructing said second sort means.